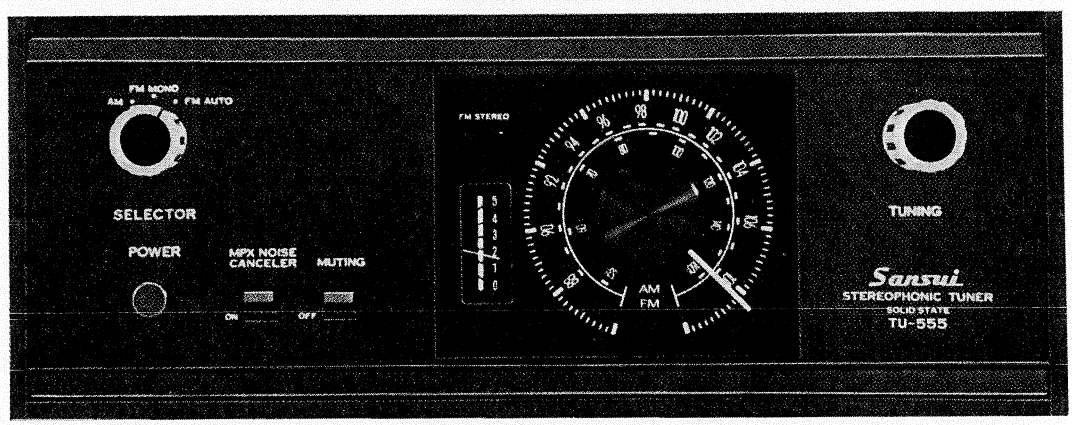
OPERATING INSTRUCTIONS & SERVICE MANUAL

SOLID-STATE AM/FM STEREO TUNER

SANSUI TU-555



Sansui

SANSUI ELECTRIC COMPANY LIMITED

Congratulations, you are now the owner of the new Sansui TU-555 FET AM-FM Stereo Tuner, an attractive and compact receiver built for exceptional performance by the world's foremost audio-only specialist. Designed especially for FM enthusiasts, the TU-555 will pull in an increasing number of FM stations more clearly in either strong signal areas or fringe locations. Its highly sensitive FET front end shows a new degree of selectivity by permitting weak signals to be tuned without being blanketed by adjacent strong signals. The functional black face front panel design will be an outstanding component in any audio system. Finally, the extreme care used in fabricating the TU-555 promises the extra values of added reliability, higher performance and longer life.

This manual has been prepared to guide you in operating and caring for the TU-555 correctly. Please read it carefully before operating the tuner and retain it for future reference.

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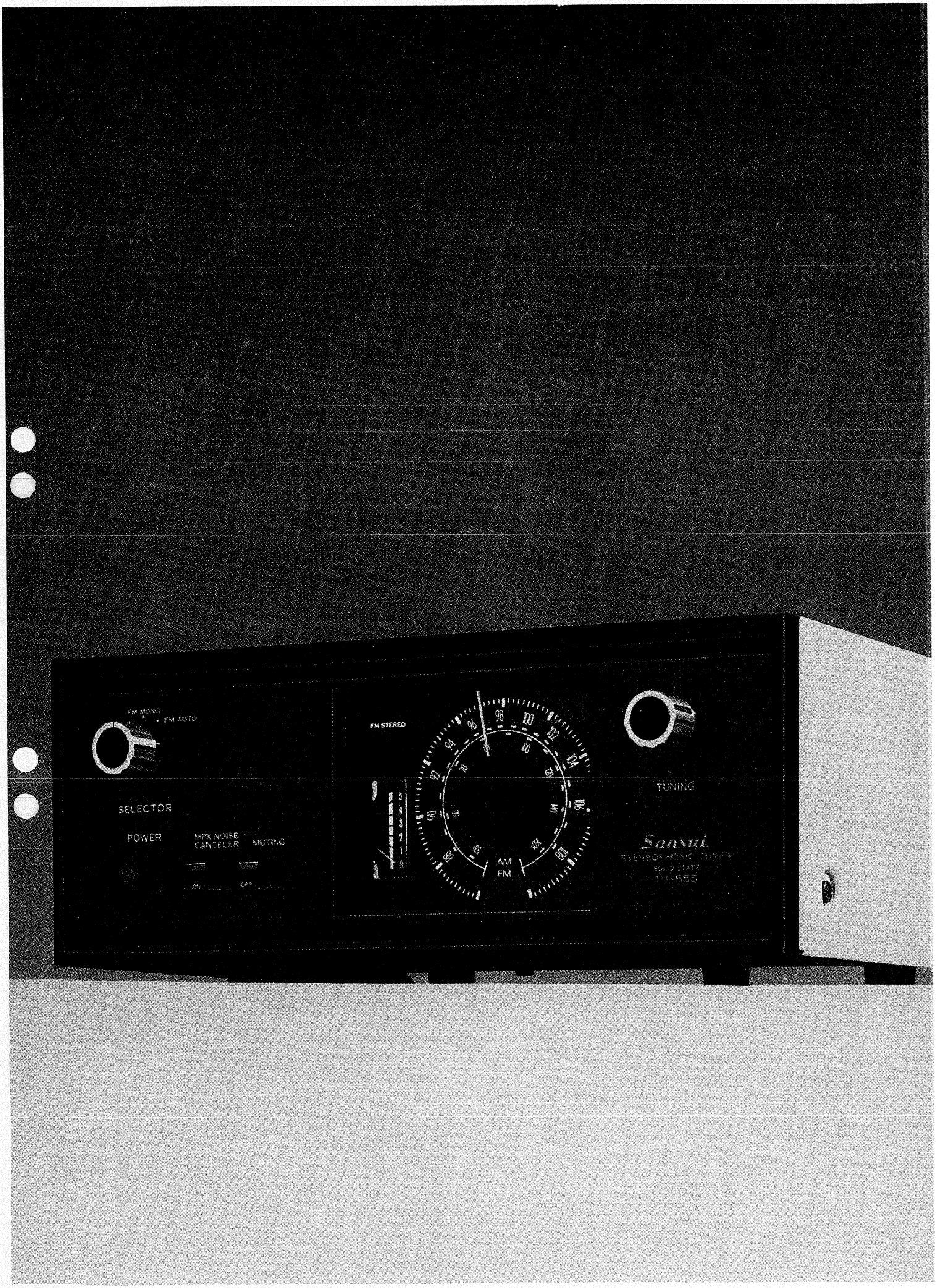
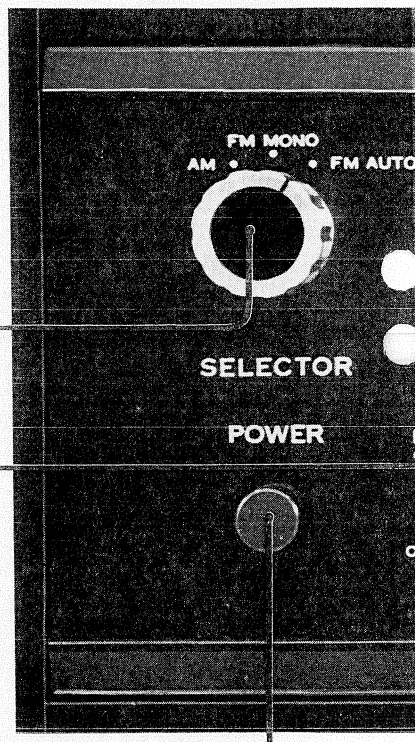

FM MONO
FM AUTO
FM STEREO
SELECTOR
POWER
MPX NOISE CANCELER
MUTING
ON
OFF
AM
FM
TUNING
Sansui
STEREO MONO TUNER
SOLID STATE
TU-555

SWITCHES AND CONTROLS



Selector Switch

AM—Use this position for all AM programs.
FM MONO—Use this position for all FM monophonic programs.
FM AUTO—Use this position for automatic FM stereo/mono switching.

MPX Noise Canceler Switch

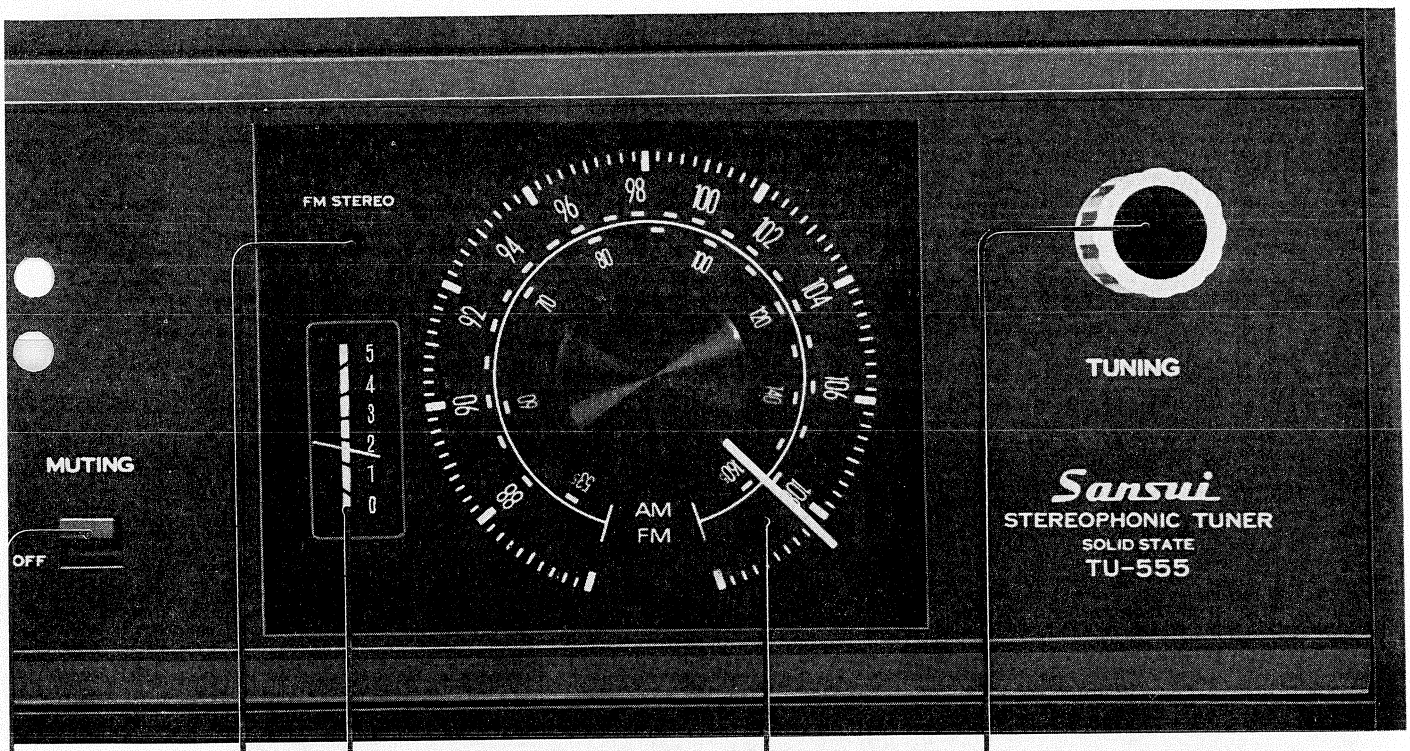
This switch is used to eliminate annoying noise on FM multiplex programs transmitted by distant or weak stations without weakening the treble tones in the music being played. When this switch is on, the TU-555's stereo separation may be slightly reduced. Unless such noise is heard, this switch should not be used.

Power Switch

Push this switch to turn the power on; push again to turn the power off.

Muting Switch

This switch is used to eliminate interstation noise for quiet FM station selection. When this switch is on, weak or distant stations may also be suppressed. To tune weak or distant stations, keep this switch in the OFF position.



FM Stereo Indicator

The stereo indicator light glows when a stereo program is received or when the dial pointer crosses a station making an FM stereo broadcast. During mono reception, it remains unlit.

Tuning Meter

This meter aids in pinpointing either AM or FM station; when the needle swings to the maximum upward position (but not necessarily to "5"), the station is correctly tuned.

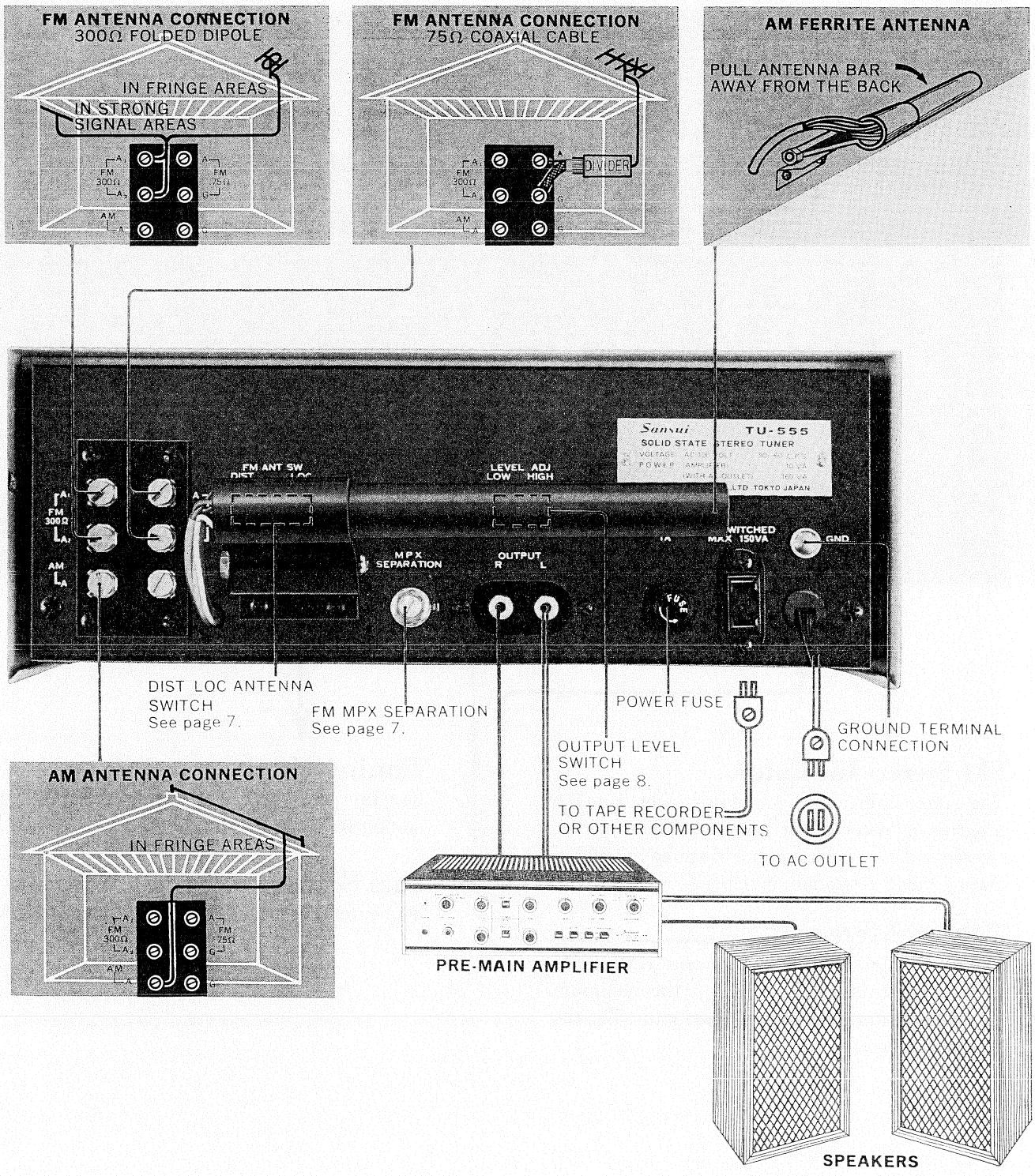
Tuning Knob

Use this knob to select your desired AM or FM station by watching the tuning meter.

Dial Scales

The outer dial scale is for FM, the inner for AM.

CONNECTION


FM ANTENNA CONNECTION
300Ω FOLDED DIPOLE
IN FRINGE AREAS
IN STRONG SIGNAL AREAS
FM ANTENNA CONNECTION
75Ω COAXIAL CABLE
DIVIDER
AM FERRITE ANTENNA
PULL ANTENNA BAR AWAY FROM THE BACK
Sansui TU-555
SOLID STATE STEREO TUNER
FM ANT SW
DIST LOC
LEVEL ADJ
LOW HIGH
MPX SEPARATION
OUTPUT
R L
SWITCHED MAX 150VA
GND
DIST LOC ANTENNA SWITCH
See page 7.
FM MPX SEPARATION
See page 7.
POWER FUSE
OUTPUT LEVEL SWITCH
See page 8.
GROUND TERMINAL CONNECTION
TO TAPE RECORDER OR OTHER COMPONENTS
TO AC OUTLET
AM ANTENNA CONNECTION
IN FRINGE AREAS
PRE-MAIN AMPLIFIER
SPEAKERS

ANTENNA CONNECTION

The quality of reception that can be expected from the TU-555 depends largely on the correct positioning and use of antennas. To pull in more stations more clearly, the following procedures are recommended:

Built-in AM Ferrite Antenna

This highly sensitive antenna, located on the rear panel of the tuner, is usually adequate for AM reception in many areas. To use, pull it down and away from the back of the tuner until the best reception is obtained.

Outdoor AM Antenna

In ferroconcrete buildings or in fringe areas, the built-in ferrite antenna may be inadequate for reception of weak or distant stations. An outdoor antenna then becomes necessary. This can be accomplished by connecting the PVC wire supplied with the set to the antenna terminal marked AM-A on the rear panel. Run this wire to an antenna that has been placed outside a window or mounted on a roof. At the same time, the unit should be grounded. Position the outdoor antenna where reception is strongest while actually receiving a broadcast. And, for reasons of safety, be sure to attach a lightning arrester to the outdoor antenna.

Indoor FM Antenna

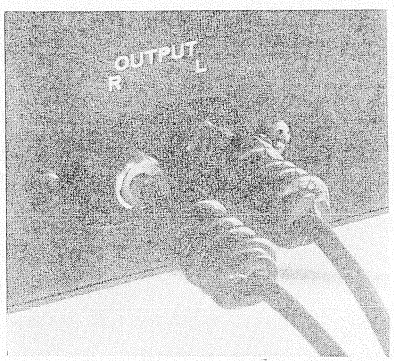
In urban or strong signal areas, satisfactory FM reception can be obtained by using the folded dipole antenna (300 ohm) supplied with the TU-555. Connect the two leads from the dipole to the terminals marked FM 300Ω A_1 and A_2 on the rear panel and tack the dipole up on the wall in the form a T. Be sure to position the dipole for best signal reception before the antenna is permanently tacked up on the wall.

Outdoor FM Antennas

In ferroconcrete buildings or in fringe areas, the indoor dipole antenna may be inadequate for reception of weak or distant FM stations. An outdoor antenna designed specifically for FM should then be installed.

Either a balanced 300 ohm or unbalanced 75 ohm antenna can be used with the TU-555. If the 300 ohm twin-lead is used, connect it to the terminals marked FM 300Ω A_1 and A_2 on the rear panel just like the indoor dipole antenna connection. If the 75 ohm coaxial cable is used, connect the center conductor to the FM 75Ω terminal and the shielding wire to the G terminal.

Note: FM sensitivity cannot be raised simply by lengthening the antenna. Adjust the antenna's height and direction while actually listening to a broadcast for best reception.



AMPLIFIER CONNECTION

To connect a control amplifier to the TU-555, use the two cables supplied with the tuner. Connect the R output on the rear panel of the tuner to the right channel input marked TUNER or AUX on the rear of the amplifier. The left channel connection are made between the L output of the tuner and the left TUNER or AUX input of the amplifier.

OPERATION
MAINTENANCE

To Listen to an AM Program

1. Set the SELECTOR switch to the AM position.
2. Select your desired station on the AM band of the tuning dial with the TUNING knob. The station is properly tuned when the needle in the tuning meter swings to the maximum upward position.

Note: While the scale of the tuning meter is graduated from 1 to 5, the needle need not move all the way to "5" to indicate optimum reception.

To Listen to a FM Program

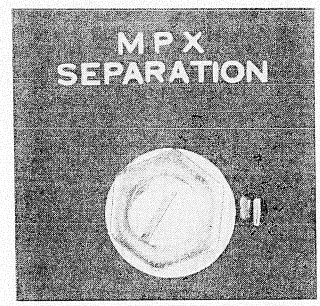
1. Set the SELECTOR switch to the FM AUTO position. If too much noise or interference accompanies a stereo program with the SELECTOR switch in the FM AUTO position, turn it to the FM MONO position and listen to the program monophonically.
2. Set the MUTING switch to the ON position.
3. Select your desired position on the FM band of the tuning dial with the TUNING knob. The station is properly tuned when the needle in the tuning meter swings to the maximum upward position.
4. Set the MPX NOISE CANCELER to the ON position if annoying noise accompanies the FM stereo program.
5. For FM stereo reception, the mode switch of the control amplifier must be in the STEREO position.

For your convenience, adjust the amplifier's rear level control to the output of a record player or other components connected to the amplifier. This level control saves readjustment of the volume control of the amplifier when the programs are switched between tuner and components.

MAINTENANCE

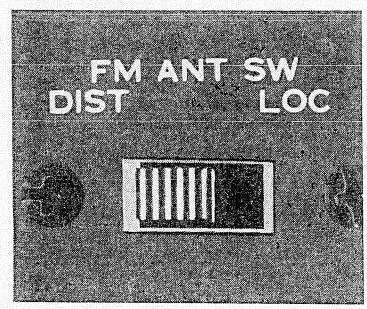
FM MPX Separation

If the channel separation during the FM stereo reception becomes inadequate or excessive, turn the screw marked MPX SEPARATION on the rear panel of the tuner for natural proportions. Never attempt to turn it without reason as it has been properly adjusted prior to leaving our factory.



Local-Distant Antenna Switch

This switch is used to attenuate very strong signals to avoid overloading. In strong signal areas, this switch should be set to LOC. In other locations, this switch should be set to DIST.

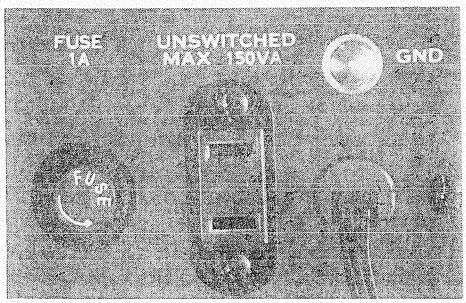


Ventilation

Adequate air circulation is absolutely essential for proper operation. The enclosure should be open at the rear, and should provide at least 1½ in. of free space above the TU-555 for air circulation. Nothing must be placed directly on the top of the tuner.

AC Outlet

One AC outlet on the rear panel is used to serve as power supply source for a tape recorder or other components. This outlet has a maximum rating of 150 VA.

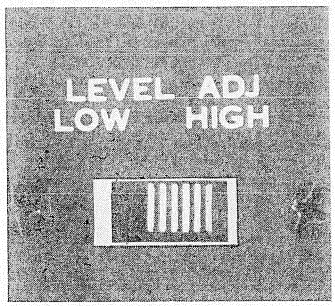


Power Fuse

Should the tuner fail to operate when the POWER switch is pushed on, the probable cause is either a power stoppage or a blown fuse. To check, remove the TU-555's power cord from its outlet, turn the fuse holder on the rear panel counterclockwise, and remove the fuse. If it is blown, replace it with a new glass-tubed fuse of the same capacity (1 ampere) after determining and eliminating the trouble source that caused the fuse to blow. Using wire or a fuse of a different capacity as a stop-gap measure is dangerous and should be avoided.

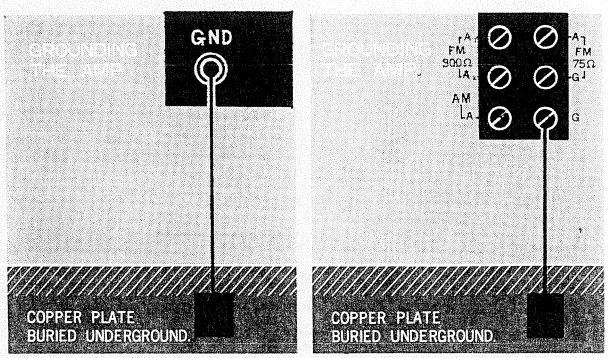
Output Level Switch

This switch is used to adjust the output level of FM and AM programs. To raise the output, set this switch to HIGH; to reduce, set it to LOW. If this switch is adjusted to the output of a record player or other components connected to the control amplifier, it saves readjustment of the volume control of the amplifier when the programs are switched between tuner and components.



Grounding

Connect a vinyl or enameled wire from the terminal screw marked GND or AM-G to a copper plate buried underground or to a water pipe. Whenever an outdoor AM antenna is used, grounding becomes necessary.



SPECIFICATIONS
CHARACTERISTICS

FM SECTION

FREQUENCY RANGE:	from 88 to 108 MHz
SENSITIVITY:	2.0μV (20dB quieting)
	2.5μV (IHF)
HARMONIC DISTORTION:	less than 0.8%
SIGNAL TO NOISE RATIO:	better than 60dB
SELECTIVITY:	better than 45dB
IMAGE FREQUENCY REJECTION:	better than 50dB
IF REJECTION:	better than 60dB
CAPTURE RATIO:	3.0dB (IHF)
SPURIOUS RESPONSE REJECTION:	better than 60dB
FM STEREO SEPARATION:	better than 35dB
SPURIOUS RADIATION:	less than 34dB
LOCAL/DISTANT SWITCH:	Local; attenuate 20dB, Distant; direct.

AM SECTION

FREQUENCY RANGE:	from 535 to 1,605 kHz
SENSITIVITY:	20μV at 1,000 kHz
IMAGE FREQUENCY REJECTION:	better than 40dB at 1,000 kHz
IF REJECTION:	better than 60dB at 1,000 kHz
SELECTIVITY:	better than 20dB at 1,000 kHz

AUDIO OUTPUT

RATED OUTPUT VOLTAGE:	greater than 1.5V
LOAD IMPEDANCE:	over 10 k ohms

INDICATORS

Signal Strength (meter)
Stereo Indicator (lamp)

OTHER SPECIAL FEATURES

FM Antenna input 300 ohms balanced/75 ohms unbalanced. AM Ferrite bar antenna. FM Muting. MPX Noise canceler, Output Adjustor. Meter Tuning. Heavy Fly-wheel Tuning.

SEMICONDUCTORS

TRANSISTOR AND FET:	20
DIODE, VARISTOR AND ZENER DIODE:	21

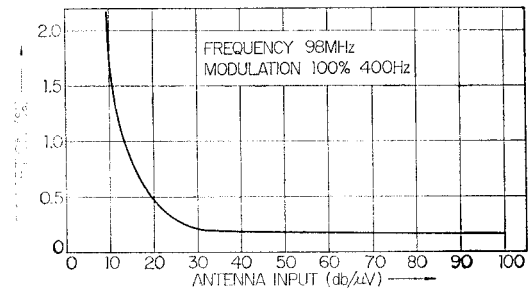
POWER REQUIREMENTS

POWER VOLTAGE:	117, 220~240V, 50 and 60Hz
POWER CONSUMPTION:	10VA

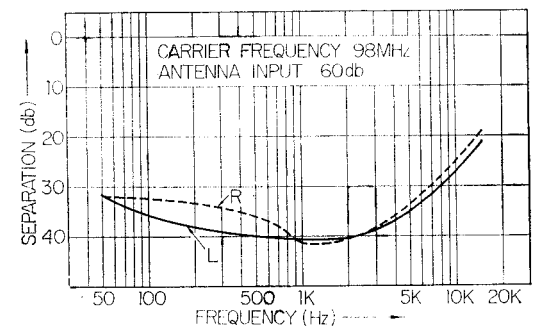
DIMENSIONS (without knobs, rubber stands and bar antenna)

WIDTH:	11½″
HIGHT:	4⅜″
DEPTH:	10½″
WEIGHT:	8⅝ lbs

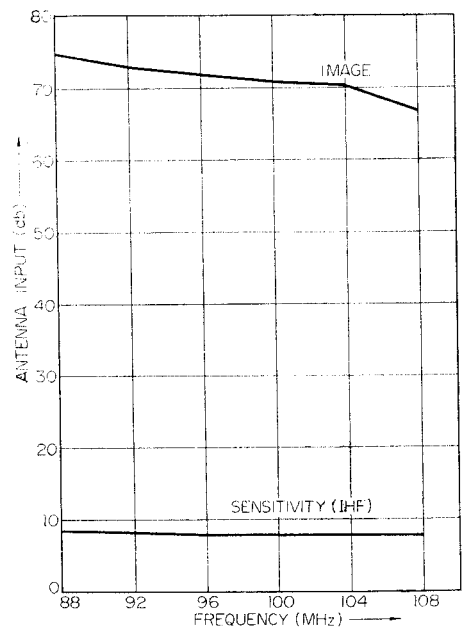
FM DISTORTIONS



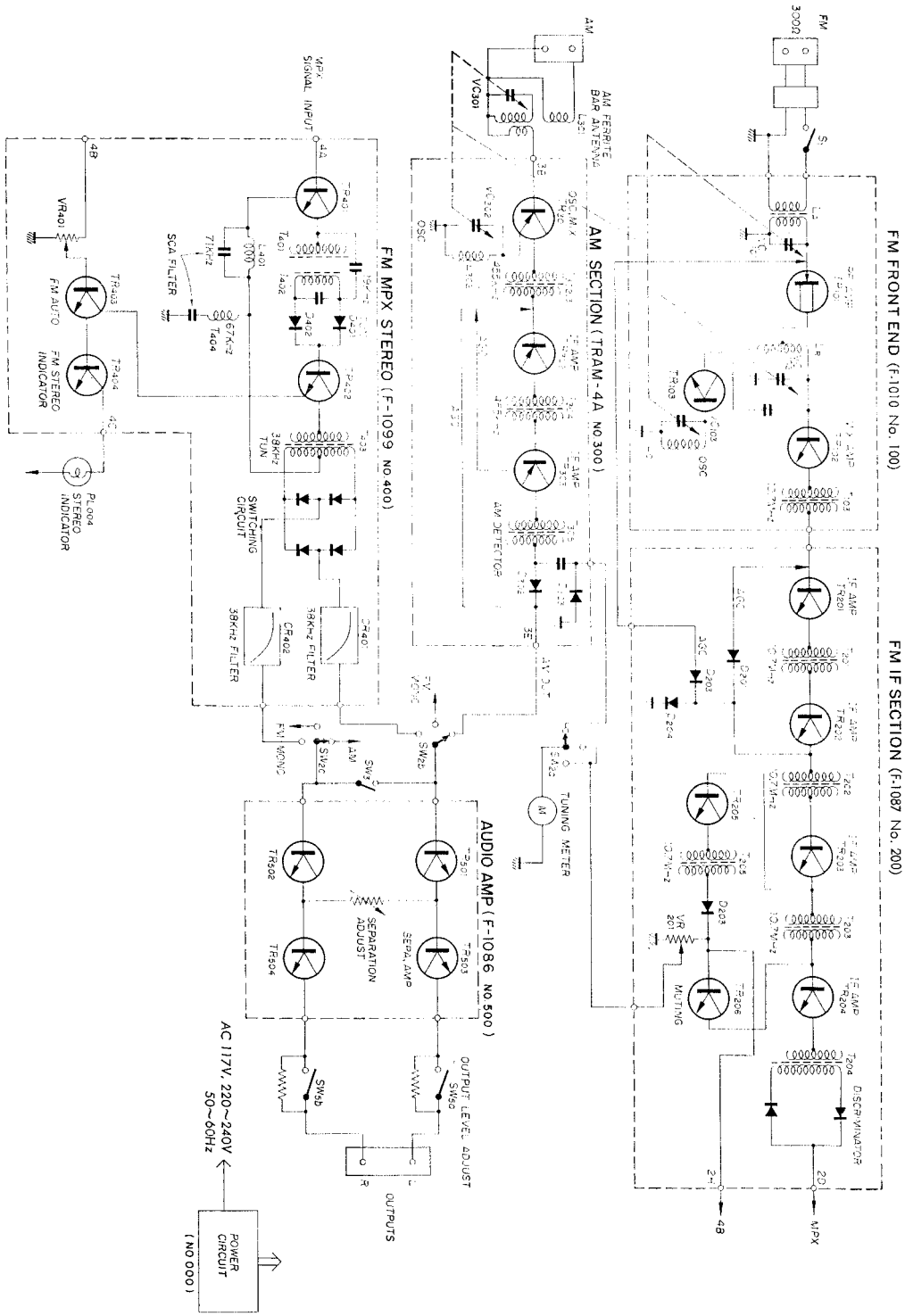
FM MPX SEPARATION



FM SENSITIVITY (IHF) & IMAGE RATIO



BLOCK DIAGRAM



GENERAL TROUBLESHOOTING CHART

In some instances, the amplifier which is operating satisfactorily develops hum or noise as listed on this page. In this case, eliminate the trouble source as indicated in the column under WHAT TO DO.
If you are confronted with a trouble not covered here or if you have any questions concerning the operation and maintenance of this amplifier, please contact our Customer Service Department.

If your AM and/or FM stereo listening isn't all you'd expected, it is in many cases that the tuner is not at fault. The trouble may attributed to the following:
1. Incorrect component connection or loose terminal contact;
2. Incorrect or improper operation of runer and/or other components;
3. Improper location of components;
4. Other component or components defective.

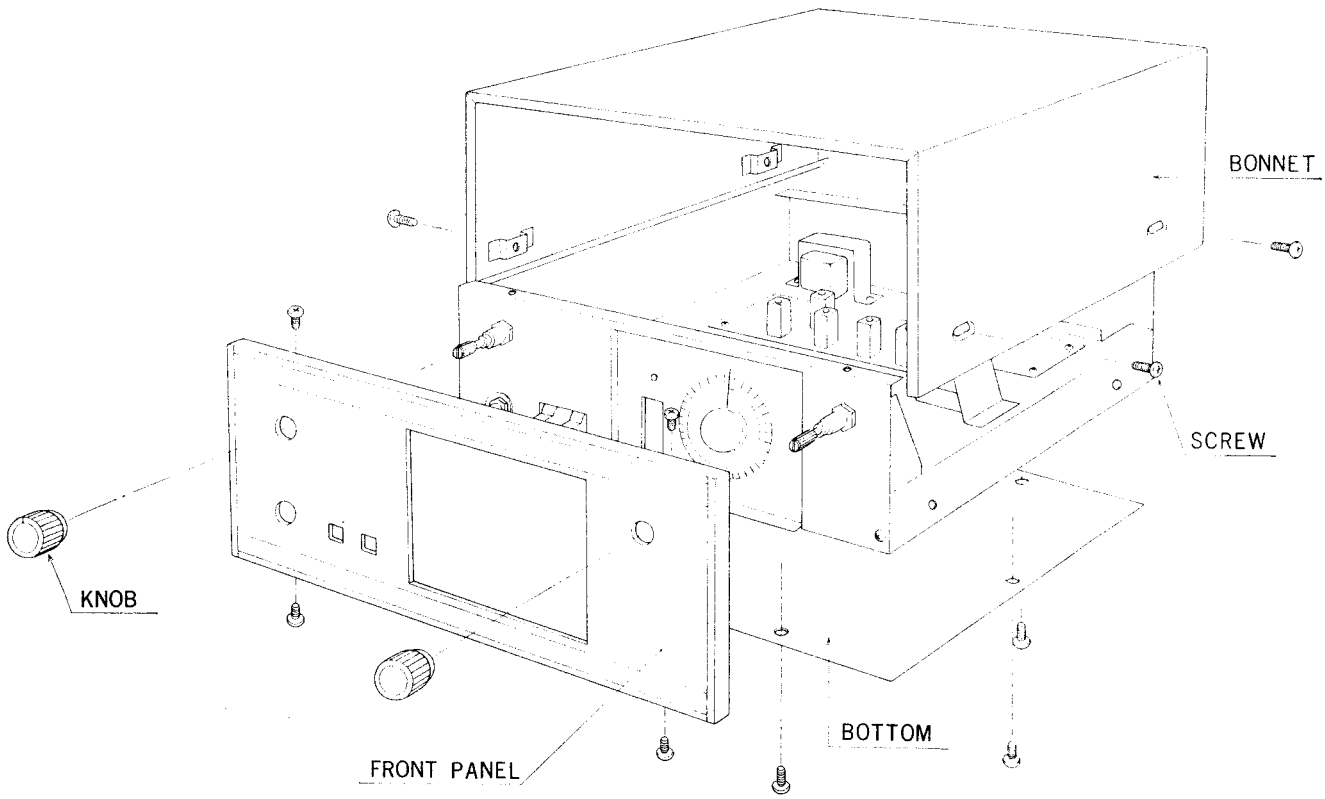
Other probable causes are listed below:

PROGRAM	SYMPTOM	PROBABLE CAUSE	WHAT TO DO
AM, FM mono or FM stereo	A. Constant or intermittent noise heard at times or in a certain area	* Discharge or oscillation caused by electrical appliances, such as fluorescent lamp, TV set, D.C. motor, rectifier and oscillator * Natural phenomena, such as atmospherics, statics, strays and thunderbolt * Insufficient antenna input due to thick reinforced concrete wall of a building or long distance from the station * Wave interference from other electrical appliances	* Attach a noise limiter to the electrical appliance that causes the noise, or attach it to the power source of the amplifier. * Install an outdoor antenna and ground the amplifier to raise the signal-to-noise ratio. * Reverse the power cord plug-receptacle connections. * If the noise occurs at a certain frequency, attach a wave trap to the ANT. input. * Keep the set in proper distance from other electrical appliances.
	B. The needle of the tuning meter does not move well.	The movement of the needle is one thing, the sensitivity of the amplifier is another.	Turn the set for maximum signal strength.
	C. The zero point of the meter diverges much.	Regional difference in field intensity	The unit is not at fault.
AM	A. Noise heard at a particular time of a day, in a certain area or over part of dial	This results from the nature of AM broadcast.	* Install the antenna for maximum antenna efficiency. See page 6. * In some cases, the noise can be eliminated by grounding the amplifier or reversing the power cord plug-receptacle connections.
	B. High-frequency noise	* Adjacent-channel interference or beat interference	* Although such noise cannot be eliminated it is advisable to switch on the noise filter of the amplifier.

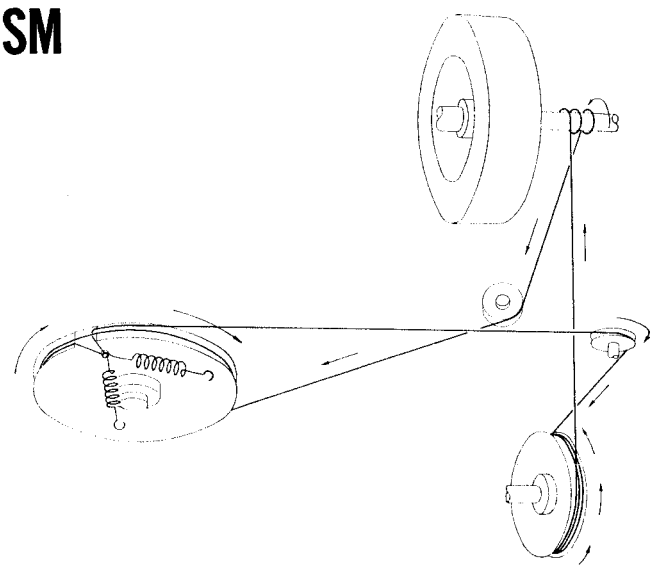
PROGRAM	SYMPTOM	PROBABLE CAUSE	WHAT TO DO
(Continued)		* TV set too close to the audio system	* Keep the TV set in proper distance from the audio system.
FM	A. Noisy	* Poor noise limiter effect or to low S/N ratio due to insufficient antenna input	* Install the antenna (attached) for maximum signal strength. * If this does not prove effective, use an outdoor antenna designed exclusively for FM. When you use a TV antenna for both TV and FM with the help of a divider, make sure the TV reception is not affedted. * Excessive long antenna may rather cause a noise.
	Note: FM reception is affected considerably by the conditions of transmission by stations: power and antenna efficiency. As a result, you may receive one station quite well while having difficulty in receiving another station.		
	B. Noise heard like "scratch noise"	* Ignition noise caused by the starting of an automobile engine	* Install the antenna and its lead-in wire in proper distance from the road or raise the antenna input as described above.
	C. Distortion or no sound during the reception	* Drift of tuning resulted from the nature of FM	* Retune the signal with the tuning knob.
	D. Tuning noise between stations	This noise results from the nature of the FM reception. As the station signal becomes weak, the noise limiter effect is also decreased. The amplification of the limiter, in turn, is enlarged and thus a big noise is generated.	* Turn the MUTING switch on.
FM stereo	A. Noise heard during FM-MPX reception while not heard during FM mono reception	* The servise area of the FM-MPX broadcast is only half as much as that of the FM mono broadcast.	* Install the antenna for maximum antenna input. * Switch on the NOISE CANCELER.
	B. Clearness of channel separation is decreased during the reception.	* Excess heat	* Circulation of air is important to the amplifier. Make sure that air can flow underneath.
	C. The stereo indicator goes on and off.	* Interference	* The indicator is not at fault. * Readjust VR_{401}.
	D. The stereo indicator goes on and off even though a stereo station is not received.	* Interference	* The indicator is not at fault. * Readjust VR_{401}.
	E. The BALANCE control of the amplifier used is not at the midpoint when equal sound comes from left and right channels	* The BALANCE control should not be always set to the midpoint	* Set the control to the position where equal sound comes from both channels * Check for unequal program loudness

DISASSEMBLY PROCEDURE

REMOVING THE FRONT PANEL, BONNET AND BOTTOM PLATE



DIAL MECHANISM

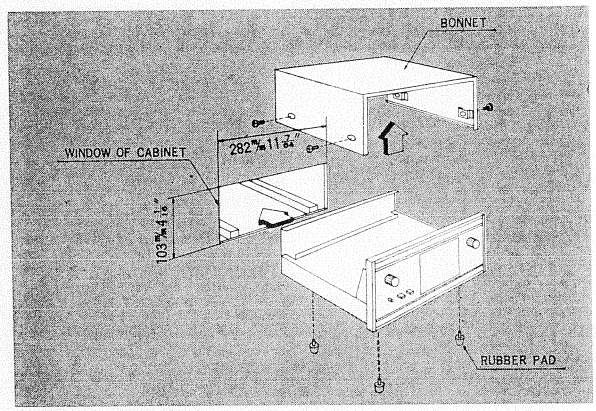


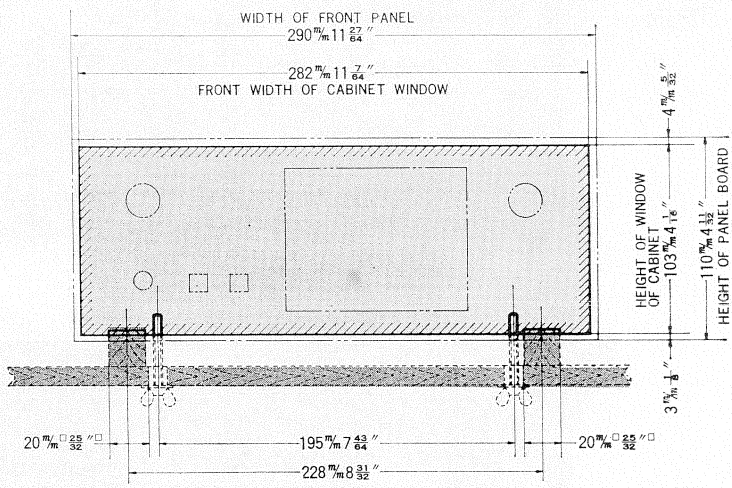
CUSTOM MOUNTING

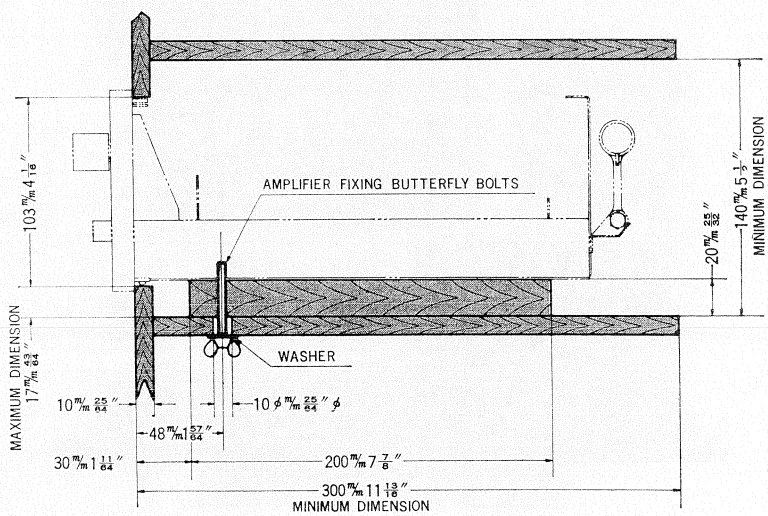
This diagram shows the size and dimensions required for mounitng the TU-555 into a custommade cabined.

Note: That ample space is provided for complete air circulation above and below the tuner.

1. Be sure the cabinet window measures $11\,^{7}/_{64}'' \times 4\,^{1}/_{16}''$ as indicated in the diagram.
2. Place two boards on the floor of the cabinet as illustrated. Board should measure $^{25}/_{32}'' \times {}^{25}/_{32}'' \times 7\,^{7}/_{8}''$.
3. Drill two holes ($^{25}/_{64}''\phi$) in the bottom of the cabinet at points corresponding to holes in the bottom of the tuner.
4. Remove the four rubber feet from the TU-555. (Retain for future use.)
5. Insert the TU-555 into the cabinet through the window until the edges of its front panel are flush with the cabinet, and secure both and cabinet with washers and butterfly bolts provided.

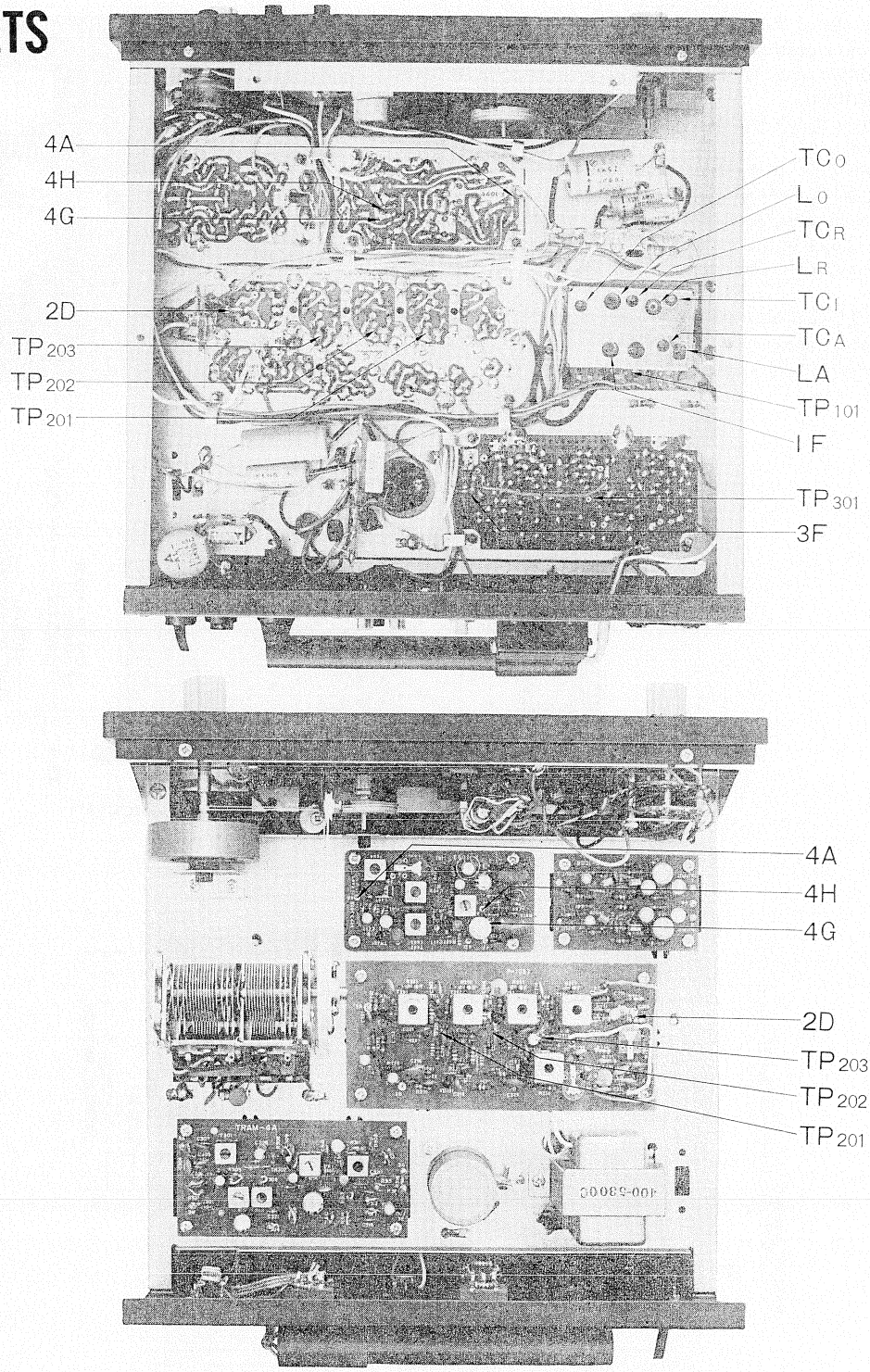






ALIGNMENT

TEST POINTS



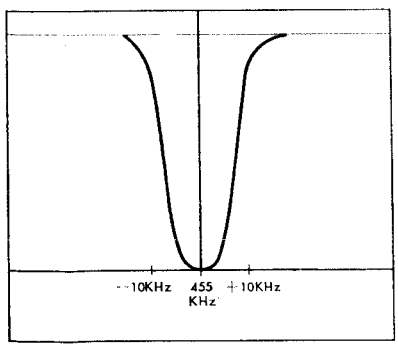
Alignment procedures are summarized in this section. Proper alignment requires use of precision instruments as given below:

1. Sweep generator; 2. Oscilloscope; 3. FM signal generator; 4. Multiplex stereo generator;
5. AC vacuum-tube voltmeter; 6. Audio signal generator; 7. AM signal generator

AM TUNER ALIGNMENT PROCEDURE

STEP	ALIGN	GENERATOR	FEED SIGNAL TO	CONNECT	DIAL SETTING	ADJUST	ADJUST FOR
1.	IF transformer	455 kHz ±30 kHz sweep generator	Antenna terminals	Oscilloscope to TP_{3F}		I.F.T. (T_{302}~T_{305}) coil	Best IF wave form
2.	OSC. (1)	AM signal generator 535 kHz 400 Hz 30% modulation	Antenna terminals	Oscilloscope & V.T.V.M. to output load	535 kHz	OSC. coil (T_{301})	Maximum
3.	OSC. (2)	1600 kHz 400 Hz 30% modulation	Antenna terminals	Oscilloscope & V.T.V.M. to output load	1600 kHz	OSC. trimmer (TC_{302})	Maximum
4.	Reiterate 2,3						
5.	Antenna circuit (1)	600 kHz 400 Hz 30% modulation	Antenna terminals	Oscilloscope & V.T.V.M. to output load	600 kHz	Ferrite antenna coil (L_{301})	Maximum
6.	Antenna circuit (2)	1400 kHz 400 Hz 30% modulation	Antenna terminals	Oscilloscope & V.T.V.M. to output load	1400 kHz	Trimmer (TC_{301})	Maximum
7.	Reiterate 5,6						

AM IF CHARACTERISTIC

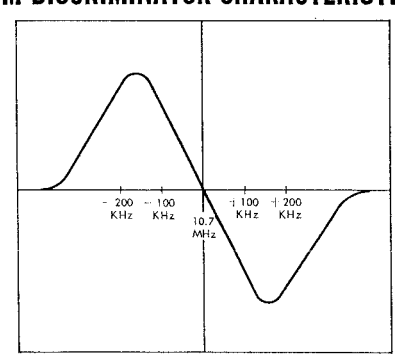


ALIGNMENT

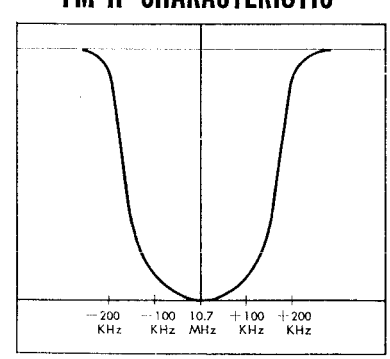
FM TUNER ALIGNMENT PROCEDURE

STEP	ALIGN	SIGNAL GENERATOR	FEED SIGNAL TO	CONNECT	DIAL SETTING	ADJUST	ADJUST FOR
1.	IF transformer	10.7 MHz ±200 kHz sweep generator	TP_{101}	Oscilloscope to TP_{203} through 0.02μF ceramic capacitor		Primary and secondary of IF transformer (T_{103}, T_{201}, T_{202}, T_{203})	Best IF wave form Place 0.02μF ceramic capacitor between collector and ground of TR_{204}
2.	Discriminator	10.7 MHz ±200 kHz sweep generator	TP_{101}	Oscilloscope to 2D through 0.02μF ceramic capacitor		Primary and secondary of discriminator transformer (T_{204})	S curve
3.	Local oscillator (1)	FM signal generator 88MHz, 400 Hz, 100% modulation	Antenna terminals	Oscilloscope and V.T.V.M. to load terminal	88 MHz	Local oscillator coil (L_0)	Maximum
4.	Local oscillator (2)	FM signal generator 108 MHz, 400 Hz, 100% modulation	Antenna terminals	Oscilloscope and V.T.V.M. to load terminal	108 MHz	Local oscillator trimmer (TC_0)	Maximum
5.	Reiterate 3, 4						
6.	High-frequency amp. circuit (1)	FM signal generator 90 MHz, 400 Hz, 100% modulation	Antenna terminals	Oscilloscope and V.T.V.M. to load terminal	90 MHz	Antenna coil (L_A, L_R)	Maximum
7.	High-frequency amp. circuit (2)	FM signal generator 106 MHz, 400 Hz, 100% modulation	Antenna terminals	Oscilloscope and V.T.V.M. to load terminal	106 MHz	Trimmer (TC_A, TC_R)	Maximum
8.	Reiterate 6, 7						

FM DISCRIMINATOR CHARACTERISTIC



FM IF CHARACTERISTIC



FM MULTIPLEX ALIGNMENT PROCEDURE

STEP	ALIGN	SIGNAL GENERATOR	FEED SIGNAL TO	CONNECT	DIAL SETTING	ADJUST	ADJUST FOR
1.	67 kHz trap	Audio signal generator, 68 kHz 200 mV r.m.s.	4A	V.T.V.M. to 4H		T_{404}	Minimum
2.	19 kHz tuning coil	1) FM signal generator, 98 MHz, 60 dB 2) Stereo signal generator, 30% modulation of composite signal (L or R) including pilot signal	Antenna terminals	V.T.V.M. to 4G	98 MHz	L_{401}, L_{402}	Maximum Set VR_{401} to max. clockwise position.
3.	38 kHz tuning coil	1) FM signal generator, 98 MHz, 60 dB 2) Stereo signal generator, 30% modulation of composite signal (L or R) including pilot signal	Antenna terminals	V.T.V.M. to 4G	98 MHz	T_{401}, T_{402}	Maximum Set VR_{401} to max. clockwise position.
4.	38 kHz tuning coil Separation VR	1) FM signal generator, 98 MHz, 60 dB 2) Stereo signal generator including pilot signal Composite signal L-channel 30% modulation	Antenna terminals	Oscilloscope and V.T.V.M. to load terminals	98 MHz	T_{403}, VR_{001}	1) Observe the wave from of the L channel output and adjust T_{401} to maximum output. 2) Adjust the separation VR_{001} for optimum separation

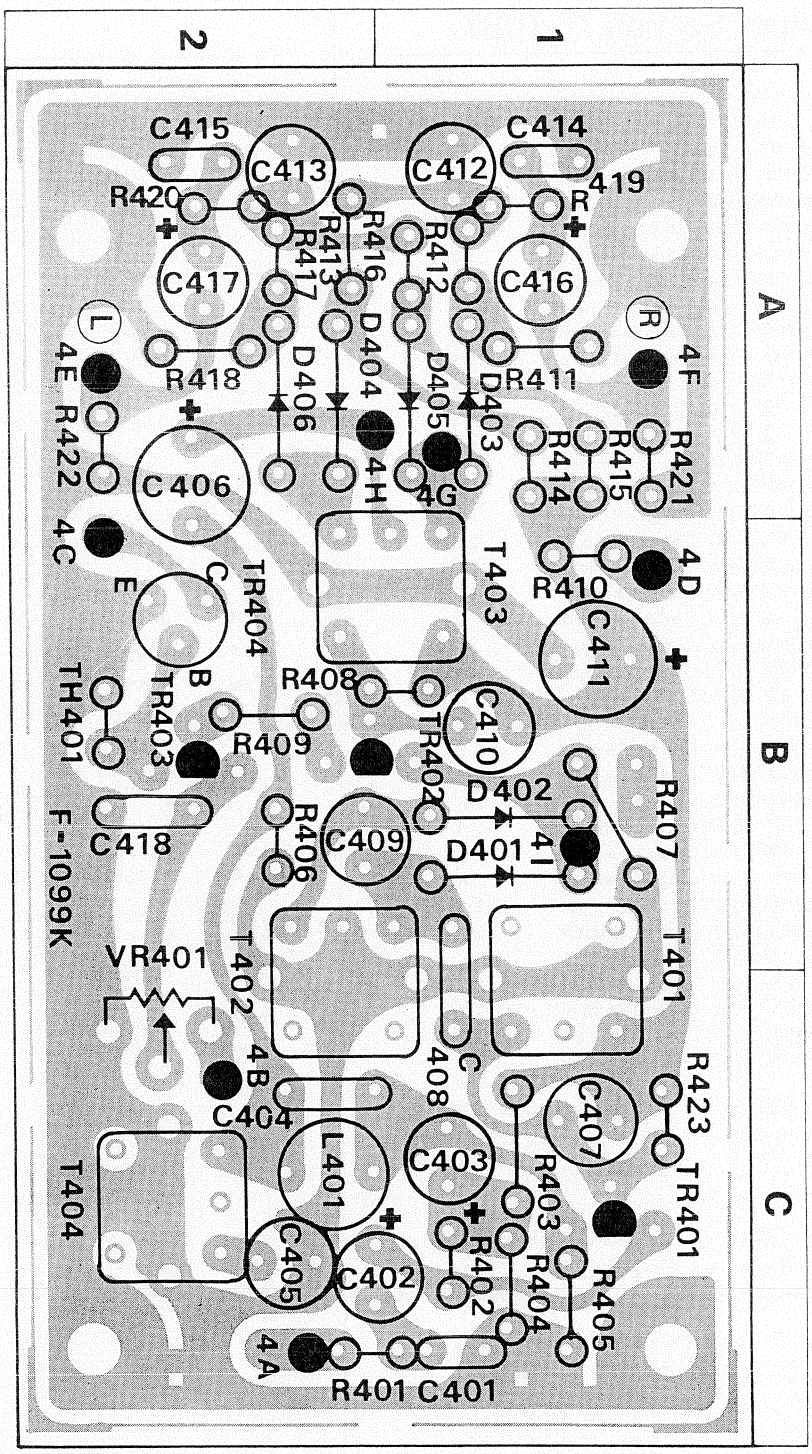
PRINTED CIRCUIT SHEETS AND PARTS LIST

X: Parts No. **Y**: Parts Name **Z**: Position of Parts
(Co-ordinate number and letter in printed circuit)

FM Multiplex and Indicator 〈F-1099K〉

X	Y	Z
R401	1kΩ ±10% ¼W Carbon Resistor	2C
R402	22kΩ ±10% ¼W Carbon Resistor	1C
R403	22kΩ ±10% ¼W Carbon Resistor	1C
R404	8.2kΩ ±10% ¼W Carbon Resistor	1C
R405	270Ω ±10% ¼W Carbon Resistor	1C
R406	3.3kΩ ±10% ¼W Carbon Resistor	2B
R407	330kΩ ±10% ¼W Carbon Resistor	1B
R408	47kΩ ±10% ¼W Carbon Resistor	1B
R409	1.2kΩ ±10% ¼W Carbon Resistor	2B
R410	47Ω ±10% ¼W Carbon Resistor	1B
R411	220kΩ ±10% ¼W Carbon Resistor	1A
R412	10kΩ ±10% ¼W Carbon Resistor	1A
R413	10kΩ ±10% ¼W Carbon Resistor	2A
R414	220kΩ ±10% ¼W Carbon Resistor	1A
R415	220kΩ ±10% ¼W Carbon Resistor	1A
R416	10kΩ ±10% ¼W Carbon Resistor	1A
R417	10kΩ ±10% ¼W Carbon Resistor	2A
R418	220kΩ ±10% ¼W Carbon Resistor	2A
R419	47kΩ ±10% ¼W Carbon Resistor	1A
R420	47kΩ ±10% ¼W Carbon Resistor	2A
R421	47kΩ ±10% ¼W Carbon Resistor	1A
R422	47kΩ ±10% ¼W Carbon Resistor	2A
TH401	33D26 (0320070)	2B
C401	100pF ±10% 50 WV Ceramic Capacitor	1C
C402	10μF 10 WV Electrolytic Capacitor	2C
C403	33μF 6.3 WV Electrolytic Capacitor	1C
C404	1000pF ±5% 50 WV Mica Capacitor	2C
C405	270pF ±5% 50 WV Styrol Capacitor	2C
C406	10μF 10 WV Electrolytic Capacitor	2A
C407	3300pF ±5% 50 WV Styrol Capacitor	1C
C408	330pF ±5% 50 WV Mica Capacitor	1B, C
C409	3300pF ±5% 50 WV Styrol Capacitor	1, 2B
C410	1500pF ±5% 50 WV Styrol Capacitor	1B
C411	100μF 16 WV Electrolytic Capacitor	1B
C412	560pF ±5% 50 WV Styrol Capacitor	1A
C413	560pF ±5% 50 WV Styrol Capacitor	2A
C414	0.0033μF ±10% 50 WV Mylar Capacitor	1A
C415	0.0033μF ±10% 50 WV Mylar Capacitor	2A
C416	0.1μF 25 WV Alum. Electrolytic Capacitor	1A
C417	0.1μF 25 WV Alum. Electrolytic Capacitor	2A
C418	0.02μF $^{+80}_{-20}$% 25 WV Ceramic Capacitor	2B
TR401	2SC828T (0305270)	1C
TR402	2SC828T (0305270)	1, 2B
TR403	2SC828T (0305270)	2B
TR404	2SD178R (0308140)	2B
D401	IN34A (0310400)	1B
D402	IN34A (0310400)	1B

X	Y	Z
D403	IN34A(Y) (0310401)	1A
D404	IN34A(Y) (0310401)	2A
D405	IN34A(Y) (0310401)	1A
D406	IN34A(Y) (0310401)	2A
T401	MPX Coil (4240300)	1B, C
T402	MPX Coil (4240300)	2B, C
T403	MPX Coil (4240310)	1, 2B
T404	MPX Coil (4240400)	2C
L401	Ferri Inductor (4900031)	2C
VR401	200kΩ(B) Indicator Adj. (1030350)	2C


2
1
A
B
C
C415
C413
C414
C412
R420
R419
R
R413
R417
R416
R412
C417
C416
L
R
4E
4F
R418
D406
D404
D405
D403
R411
R414
R415
R421
C406
4H
4G
T403
4D
R410
4C
E
C
TR404
C411
R408
B
TR403
TH401
R409
TR402
C410
D402
R407
C418
R406
C409
D401
4I
F-1099K
VR401
T402
T401
C
408
R423
4B
C404
C407
TR401
T404
L401
C403
R403
R404
R405
C405
C402
R402
4A
R401
C401

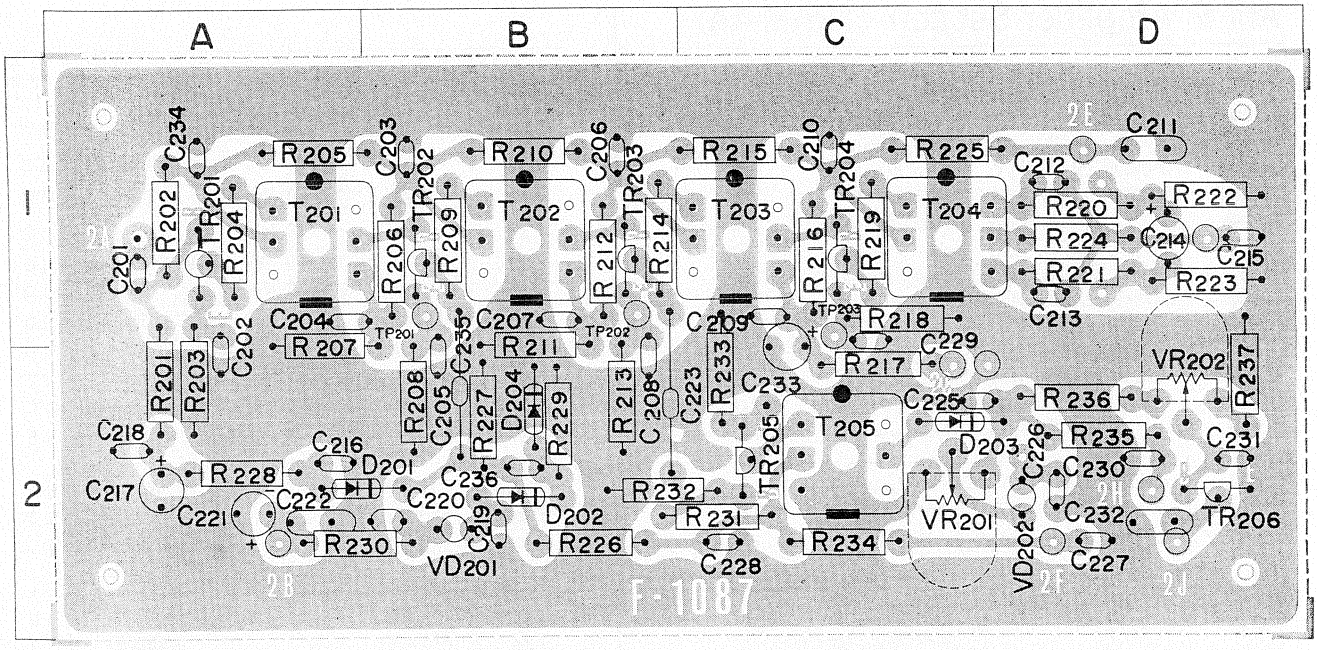
PRINTED CIRCUIT SHEETS AND PARTS LIST

X : Parts No. **Y** : Parts Name **Z** : Position of Parts
(Co-ordinate number and letter in printed circuit)

FM IF Amplifier Section ⟨F-1087⟩

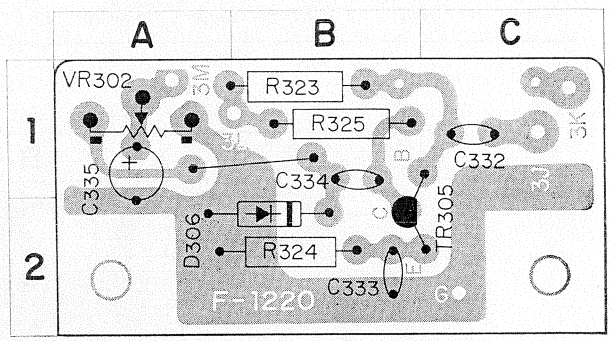
X	Y	Z
R201	4.7kΩ ±10% ¼W Carbon Resistor	2A
R202	180kΩ ±10% ¼W Carbon Resistor	1A
R203	390Ω ±10% ¼W Carbon Resistor	2A
R204	560Ω ±10% ¼W Carbon Resistor	1A
R205	22Ω ±10% ¼W Carbon Resistor	1A
R206	12kΩ ±10% ¼W Carbon Resistor	1B
R207	6.8kΩ ±10% ¼W Carbon Resistor	1A
R208	1kΩ ±10% ¼W Carbon Resistor	2B
R209	820Ω ±10% ¼W Carbon Resistor	1B
R210	22Ω ±10% ¼W Carbon Resistor	1B
R211	6.8kΩ ±10% ¼W Carbon Resistor	2B
R212	10kΩ ±10% ¼W Carbon Resistor	1B
R213	1kΩ ±10% ¼W Carbon Resistor	2B
R214	680Ω ±10% ¼W Carbon Resistor	1B
R215	22Ω ±10% ¼W Carbon Resistor	1C
R216	10kΩ ±10% ¼W Carbon Resistor	1C
R217	6.8kΩ ±10% ¼W Carbon Resistor	2C
R218	1kΩ ±10% ¼W Carbon Resistor	1C
R219	680Ω ±10% ¼W Carbon Resistor	1C
R220	1.5kΩ ±10% ¼W Carbon Resistor	1D
R221	1kΩ ±10% ¼W Carbon Resistor	1D
R222	10kΩ ±10% ¼W Carbon Resistor	1D
R223	10kΩ ±10% ¼W Carbon Resistor	1D
R224	68Ω ±10% ¼W Carbon Resistor	1D
R225	22Ω ±10% ¼W Carbon Resistor	1C
R226	100kΩ ±10% ¼W Carbon Resistor	2B
R227	12kΩ ±10% ¼W Carbon Resistor	2B
R228	1kΩ ±10% ¼W Carbon Resistor	2A
R229	22kΩ ±10% ¼W Carbon Resistor	2B
R230	39kΩ ±10% ¼W Carbon Resistor	2A
R231	22kΩ ±10% ¼W Carbon Resistor	2C
R232	10kΩ ±10% ¼W Carbon Resistor	2B
R233	1kΩ ±10% ¼W Carbon Resistor	2C
R234	22Ω ±10% ¼W Carbon Resistor	2C
R235	47kΩ ±10% ¼W Carbon Resistor	2D
R236	39kΩ ±10% ¼W Carbon Resistor	2D
R237	12kΩ ±10% ¼W Carbon Resistor	2D
C201	1000pF ±10% 50 WV Ceramic Capacitor	1A
C202	0.02μF $^{+100}_{-0}$% 25 WV Ceramic Capacitor	2A
C203	0.02μF $^{+100}_{-0}$% 25 WV Ceramic Capacitor	1B
C204	0.02μF $^{+100}_{-0}$% 25 WV Ceramic Capacitor	1A
C205	0.02μF $^{+100}_{-0}$% 25 WV Ceramic Capacitor	2B
C206	0.02μF $^{+100}_{-0}$% 25 WV Ceramic Capacitor	1B
C207	0.02μF $^{+100}_{-0}$% 25 WV Ceramic Capacitor	1B
C208	0.02μF $^{+100}_{-0}$% 25 WV Ceramic Capacitor	2B
C209	0.02μF $^{+100}_{-0}$% 25 WV Ceramic Capacitor	1C
C210	0.02μF $^{+100}_{-0}$% 25 WV Ceramic Capacitor	1C
C211	0.04μF $^{+100}_{-0}$% 25 WV Ceramic Capacitor	1D

X	Y	Z
C212	220pF ±20% 50 WV Ceramic Capacitor	1D
C213	220pF ±20% 50 WV Ceramic Capacitor	1D
C214	10μF 10 WV RB Electrolytic Capacitor	1D
C215	47pF ±10% 50 WV Ceramic Capacitor	1D
C216	100pF ±20% 50 WV Ceramic Capacitor	2A
C217	3.3μF 25 WV RB Electrolytic Capacitor	2A
C218	0.02μF $^{+100}_{-0}$% 25 WV Ceramic Capacitor	2A
C219	1000pF ±20% 50 WV Ceramic Capacitor	2B
C220	1000pF ±20% 50 WV Ceramic Capacitor	2B
C221	0.47μF 25 WV Aluminum Solid Capacitor	2A
C222	0.04μF $^{+100}_{-0}$% 25 WV Ceramic Capacitor	2A
C223	2.2μF ±0.5pF 50 WV Ceramic Capacitor	2B
C224	0.02μF $^{+100}_{-0}$% 25 WV Ceramic Capacitor	2C
C225	0.01μF $^{+100}_{-0}$% 25 WV Ceramic Capacitor	2D
C226	0.02μF $^{+100}_{-0}$% 25 WV Ceramic Capacitor	2D
C227	0.02μF $^{+100}_{-0}$% 25 WV Ceramic Capacitor	2D
C228	0.02μF $^{+100}_{-0}$% 25 WV Ceramic Capacitor	2C
C229	0.02μF $^{+100}_{-0}$% 25 WV Ceramic Capacitor	1C
C230	0.02μF $^{+100}_{-0}$% 25 WV Ceramic Capacitor	2D
C231	0.02μF $^{+100}_{-0}$% 25 WV Ceramic Capacitor	2D
C232	0.04μF $^{+100}_{-0}$% 25 WV Ceramic Capacitor	2D
C233	1μF 50 WV RB Electrolytic Capacitor	2C
C234	0.02μF $^{+100}_{-0}$% 25 WV Ceramic Capacitor	2B
C235	4.7pF ±20% 50 WV Ceramic Capacitor	2B
C236	47pF ±10% 50 WV Ceramic Capacitor	2B
TR201	2SC829(C) (030546-1)	1A
TR202	2SC829(B) (030546)	1B
TR203	2SC829(B) (030546)	1B
TR204	2SC829(B) (030546)	1C
TR205	2SC829(C) (030546-1)	2C
TR206	2SC828(T) (030527)	2D
T201	FM IFT (423532)	1A
T202	FM IFT (423533)	1B
T203	FM IFT (423533)	1C
T204	FM Discriminator Trans (423518)	1C
T205	FM Meter Trans (423529)	2C
D201	IN60 (031033)	2A
D202	IN60 (031033)	2B
D203	IN60 (031033)	2C
D204	IN60 (031033)	
VD201	DS410 (031046)	2B
VD202	DS410 (031046)	2C
VR201	Meter Control 50kΩ(B) (103020)	2C
VR202	Muting Control 200kΩ(B) (103035)	2D



Meter 〈F-1220〉

X	Y	Z
R_{323}	680kΩ ±10% ¼W Carbon Resistor	1 B
R_{324}	2.2kΩ ±10% ¼W Carbon Resistor	2 B
R_{325}	4.7kΩ ±10% ¼W Carbon Resistor	1 B
VR_{302}	V101KR-B 50kΩ (103049,-1)	1 A
C_{332}	100pF ±10% 25WV Ceramic Capacitor	1 C
C_{333}	0.02μF $^{+80}_{-20}$% 25WV Ceramic Capacitor	2 B
C_{334}	0.68μF 25WV Aluminum Solid Capacitor	1 B
C_{335}	1μF 50WV Electrolytic Capacitor	1 A
TR_{305}	2SC460 B, C (030535,-1)	2 B
D_{306}	IN60 (031033)	2 B

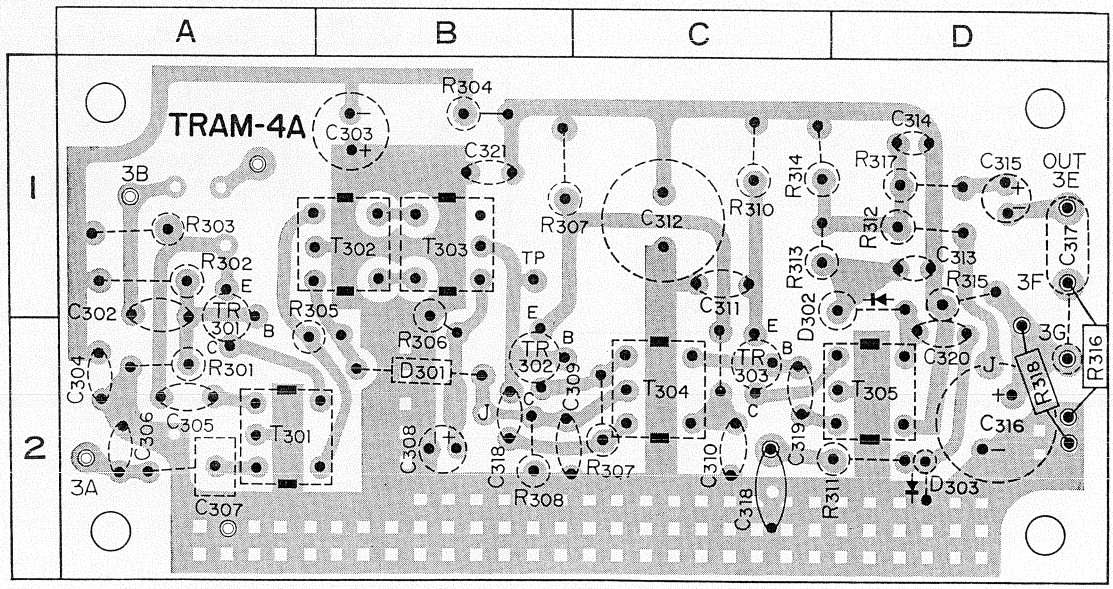


PRINTED CIRCUIT SHEETS AND PARTS LIST

AM IF Amplifier Section 〈TRAM-4A〉

X	Y	Z
R301	82kΩ ±10% ¼W Carbon Resistor	2 A
R302	4.7kΩ ±10% ¼W Carbon Resistor	1 A
R303	1.8kΩ ±10% ¼W Carbon Resistor	1 A
R304	120Ω ±10% ¼W Carbon Res stor	1 B
R305	68kΩ ±10% ¼W Carbon Resistor	2 A
R306	68kΩ ±10% ¼W Carbon Resistor	1 B
R307	56kΩ ±10% ¼W Carbon Resistor	2 C
R308	2.2kΩ ±10% ¼W Carbon Resistor	2 B
R309	1kΩ ±10% ¼W Carbon Resistor	1 B
R310	330Ω ±10% ¼W Carbon Resistor	1 C
R312	5.6kΩ ±10% ¼W Carbon Resistor	1 D
R313	1kΩ ±10% ¼W Carbon Resistor	1 C
R314	4.7kΩ ±10% ¼W Carbon Resistor	1 C
R315	470Ω ±10% ¼W Carbon Resistor	1 D
R316	4.7kΩ ±10% ¼W Carbon Resistor	2 D
R317	27kΩ ±10% ¼W Carbon Resistor	2 D
R029	4.7kΩ ±10% ¼W Carbon Resistor	1 B
C302	0.02μF $^{+100}_{-0}$% 50 WV Ceramic Capacitor	1 A
C303	47μF 10 WV RB Electrolytic Capacitor	1 B
C304	0.02μF $^{+100}_{-0}$% 50 WV Ceramic Capacitor	2 A
C305	0.005μF ±20% 50 WV Ceramic Capacitor	2 A
C306	15pF ±10% 50 WV Ceramic Capacitor	2 A
C307	430pF ±10% 25 WV Mica Capacitor	2 A
C308	1μF 50 WV Ceramic Capacitor	2 B

X	Y	Z
C309	0.02μF $^{+100}_{-0}$% 50 WV Ceramic Capacitor	2 B
C310	0.02μF $^{+100}_{-0}$% 50 WV Ceramic Capacitor	2 C
C311	0.02μF $^{+100}_{-0}$% 50 WV Ceramic Capacitor	1 C
C312	220μF 10 WV RB Electrolytic Capacitor	1 C
C313	0.01μF ±10% 50 WV Mylar Capacitor	1 D
C314	0.01μF ±10% 50 WV Mylar Capacitor	1 D
C315	0.47μF 25 WV Aluminum Solid Capacitor	1 D
C317	0.1μF ±10% 50 WV Mylar Capacitor	1 D
C318	2pF ±0.5pF 50 WV Ceramic Capacitor	2 C
C319	1pF ±0.5pF 50 WV Ceramic Capacitor	2 C
C321	0.02μF $^{+100}_{-0}$% 50 WV Ceramic Capacitor	1 B
TR301	2SA102 (030004)	2 A
TR302	2SA101(X) (030005)	2 B
TR303	2SA101(Y) (030005-1)	2 C
T301	AM Locol Oscilator Coil (422006)	2 A
T302	AM IFT (423007)	1 B
T303	AM IFT (423008)	1 B
T304	AM IFT (423009)	2 C
T305	AM IFT (423010)	2 D
D301	IN60 (031033)	2 B
D302	IN60 (031033)	1 D

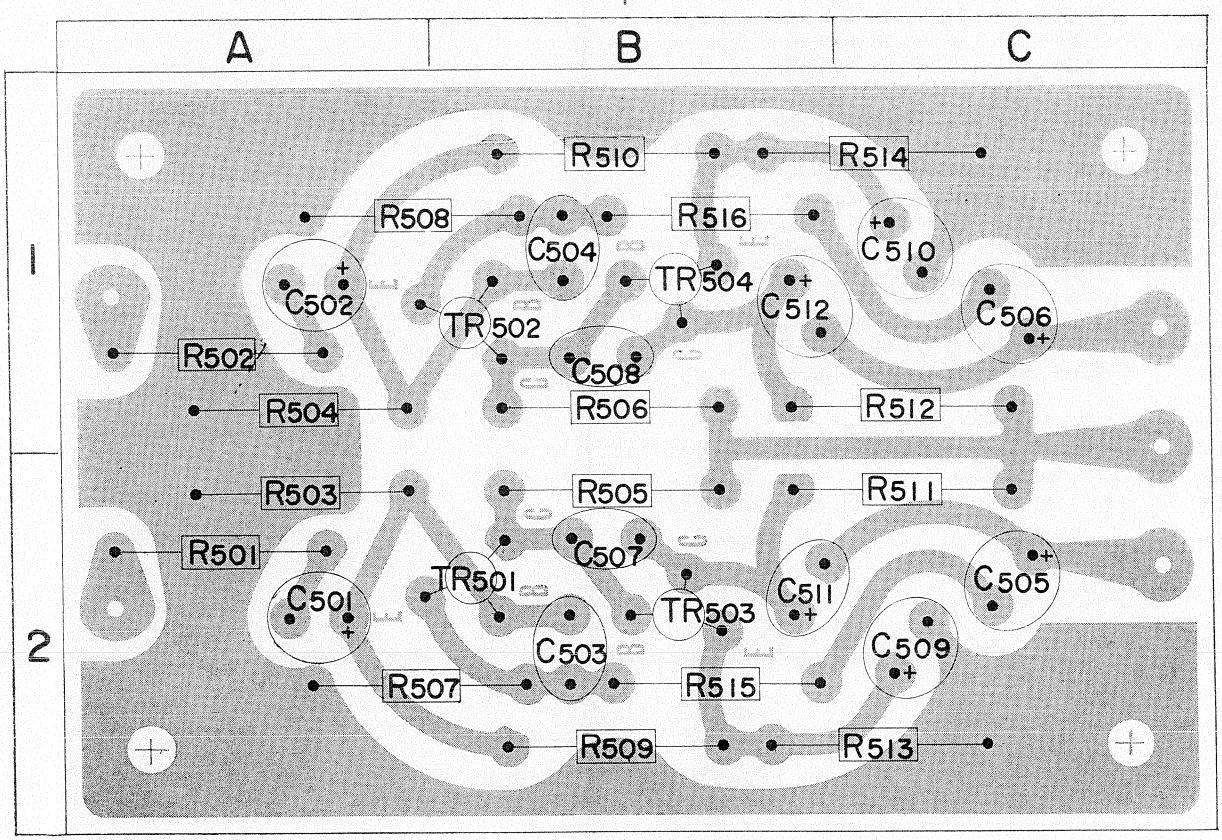


X: Parts No. **Y**: Parts Name **Z**: Position of Parts
(Co-ordinate unmber and letter in printed circuit)

Audio Amplifier Section 〈F-1086〉

X	Y	Z
R501	1kΩ ±10% ¼W Carbon Resistor	2 A
R502	1kΩ ±10% ¼W Carbon Resistor	1 A
R503	270kΩ ±10% ¼W Carbon Resistor	2 A
R504	270kΩ ±10% ¼W Carbon Resistor	1 A
R505	100kΩ ±10% ¼W Carbon Resistor	2 B
R506	100kΩ ±10% ¼W Carbon Resistor	1 B
R507	1kΩ ±10% ¼W Carbon Resistor	2 A
R508	1kΩ ±10% ¼W Carbon Resistor	1 A
R509	150kΩ ±10% ¼W Carbon Resistor	2 B
R510	150kΩ ±10% ¼W Carbon Resistor	1 B
R511	5.6kΩ ±10% ¼W Carbon Resistor	2 C
R512	5.6kΩ ±10% ¼W Carbon Resistor	1 C
R513	820Ω ±10% ¼W Carbon Resistor	2 C
R514	820Ω ±10% ¼W Carbon Resistor	1 C
R515	33kΩ ±10% ¼W Carbon Resistor	2 B
R516	33kΩ ±10% ¼W Carbon Resistor	1 B
C501	1μF 50 WV RB Electrolytic Capacitor	2 A
C502	1μF 50 WV RB Electrolytic Capacitor	1 A

X	Y	Z
C503	100 pF ±20% 25 WV Ceramic Capacitor	2 B
C504	100 pF ±20% 25 WV Ceramic Capacitor	1 B
C505	10μF 25 WV RB Electrolytic Capacitor	2 C
C506	10μF 25 WV RB Electrolytic Capacitor	1 C
C507	100 pF ±20% 25 WV Ceramic Capacitor	2 B
C508	100 pF ±20% 25 WV Ceramic Capacitor	1 C
C509	100μF 6.3 WV RB Elcctrolytic Capacitor	2 C
C510	100μF 6.3 WV RB Electrolytic Capacitor	1 C
C511	10μF 25 WV RB Electrolytic Capacitor	2 B
C512	10μF 25 WV RB Electrolytic Capacitor	1 B
TR501	2SC871(D) (030547)	2 A
TR502	2SC871(D) (030547)	1 A
TR503	2SC458(B) or (C) (030511-1 or 2)	2 B
TR504	2SC458(B) or (C) (030511-1 or 2)	1 B



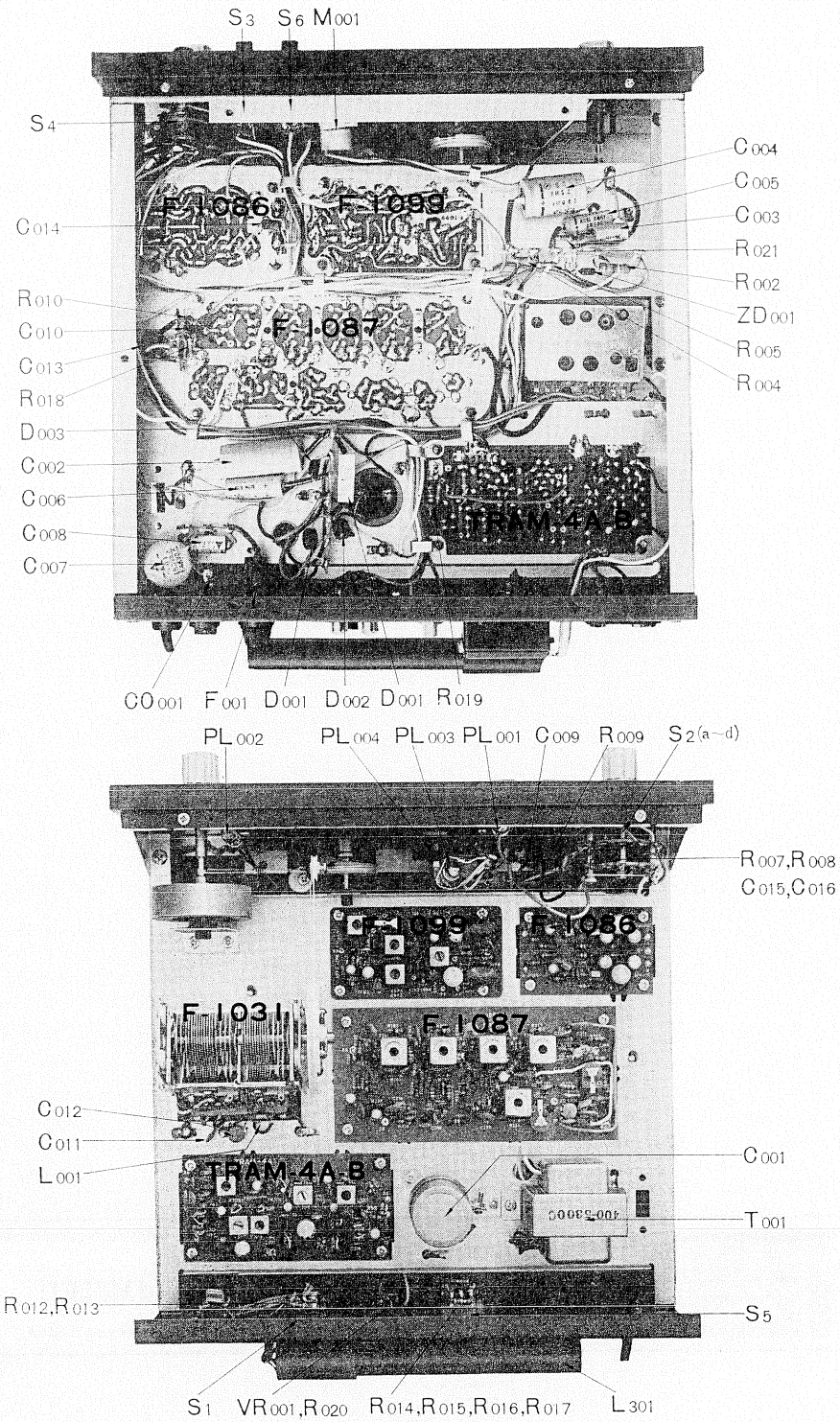
OTHER PARTS AND THEIR POSITION ON CHASSIS

X : Parts No. **Y** : Parts Name

Others

X	Y	
R001	470Ω ±10% 3W Cement Resistor	
R002	330Ω ±10% ½W Carbon Resistor	
R004	2.7kΩ ±10% ¼W Carbon Resistor	
R005	1.8kΩ ±10% ¼W Carbon Resistor	
R007	180kΩ ±10% ¼W Carbon Resistor	
R008	180kΩ ±10% ¼W Carbon Resistor	
R009	1kΩ ±10% ¼W Carbon Resistor	
R010	100kΩ ±10% ¼W Carbon Resistor	
R012	680Ω ±10% ¼W Carbon Resistor	
R013	68Ω ±10% ¼W Carbon Resistor	
R014	47kΩ ±10% ¼W Carbon Resistor	
R015	12kΩ ±10% ¼W Carbon Resistor	
R016	47kΩ ±10% ¼W Carbon Resistor	
R017	12kΩ ±10% ¼W Carbon Resistor	
R018	1MΩ ±10% ¼W Carbon Resistor	
R019	10kΩ ±10% ¼W Carbon Resistor	
R021	4.7kΩ ±10% ¼W Carbon Resistor	
R431	47kΩ ±10% ¼W Carbon Resistor	
R432	47kΩ ±10% ¼W Carbon Resistor	
R433	6.8kΩ ±10% ¼W Carbon Resistor	
C001	2000μF 35 WV Lug Electrolytic Capacitor	
C002	470μF 16 WV RA Electrolytic Capacitor	
C003	33μF 16 WV RA Electrolytic Capacitor	
C004	220μF 25 WV RA Electrolytic Capacitor	
C005	100μF 16 WV RA Electrolytic Capacitor	
C006	220μF 10 WV RA Electrolytic Capacitor	
C007	0.033μF ±20% 600WV Oil Capacitor	
C008	0.0047μF ±20% 600WV Oil Capacitor	
C009	0.0012μF ±10% 50 WV Mylar Capacitor	
C010	0.0022μF ±10% 50 WV Mylar Capacitor	
C011	0.02μF $^{+100}_{-0}$% 50 WV Ceramic Capacitor	
C012	0.02μF $^{+100}_{-0}$% 50 WV Ceramic Capacitor	
C013	0.22μF ±10% 50 WV Mylar Capacitor	
C014	0.0033μF ±10% 50 WV Mylar Capacitor	
T101	300Ω : 75Ω FM Antenna Trans	
L001	3.5μH High-frequency Choke	(429001-1)
L301	Ferrite Bar Antenna	(420010)
L302	3.5μH Choke Coil	(429001-1)
T001	Power Trans	(400030-1)
M001	200μA 1.2kΩ Tuning Meter	(090025)
VR001	10kΩ(B) 16φ Separation Control	(100502)
S1	Antenna Switch	(111004)
S2(a~d)	Y-2-4-3 Rotary Switch	(110209)
S3	Noise Canceler Switch	(117006)
S4	Power Switch	(113009)
S5	Output Level adjusting Switch	(111004)

X	Y	
S6	Muting Switch	(117006)
S7	Voltage Selector Switch	(111008)
F001	Fuse Holder (1-ampere fuse)	(230002)
CO001	AC Outlet	(245001)
D001	SW-05-01 Si Diode	(031051)
D002	SW-05-01 Si Diode	(031051)
D003	SM-150-01 Si Diode	(031028)
ZD001	ZR212 Zener Diode	(031041)


S3 S6 M001
S4
C004
C005
C003
R021
R002
ZD001
R005
R004
F-1086
F-1099
C014
R010
C010
C013
R018
D003
C002
C006
C008
C007
F-1087
TRAM-4A-B
CO001 F001 D001 D002 D001 R019
PL002 PL004 PL003 PL001 C009 R009 S2(a~d)
R007,R008
C015,C016
F-1099
F-1086
F-1031
F-1087
C012
C011
L001
TRAM-4A-B
C001
T001
R012,R013
S5
S1 VR001,R020 R014,R015,R016,R017 L301